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ABSTRACT

The Teacher Recruitment and Internship Project for Success (TRIPS) is an intern-mentor alternative program designed to attract academically talented foreign language, mathematics, and science teachers in Georgia. TRIPS teachers receive summer training in pedagogy, and then are involved in a year-long internship under the direction of a mentor teacher and a college professor. Interns and mentors also participate in a week-long summer workshop. Mentors receive specialized training in communication skills and conferencing, observation and analysis of teaching, evaluation, research, and literature on supervision. The program focuses on achieving competence in the areas of: (1) human growth and development; (2) curriculum; (3) teaching methods; and (4) identification and education of children with special learning needs. The 1-year supervised internship under the guidance of the mentor teacher is supported by the local school system. This paper outlines the planning process for the program and presents a detailed description of the summer institute program. The appendix consists of an overview of the program. (JD)

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An Alternative Secondary Teacher Training Model: The Georgia Model

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"...education must be conceived as a continuing reconstruction of experience; that the process and the goal of education are one and the same thing."

John Dewey
Experience and Education

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An Alternative Secondary Teacher Training Model: The Georgia Model

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Introduction

The Teacher Shortage Problem

In the State of Georgia there is a shortage of foreign language, mathematics and science teachers. According to the Georgia Department of Education, over half of Georgia's science teachers are provisionally certified. Teacher education programs in Georgia's college and universities, as well as colleges and universities throughout the country are not producing enough teachers in these fields to meet needs of Georgia's school systems. For example, in 1987, only one-quarter of the teachers who were hired in the Georgia's schools were prepared in undergraduate teacher education programs in the State. It is predicted that this shortage of fully trained foreign language, mathematics and science teachers will continue well into the foreseeable future. Some school districts, such as Atlanta, predict that over fifty percent of the current teaching force will retire by 1992. These, and other projections document a major teacher shortage problem.

Alternative Models

One program that is contributing to the solution of this problem is the Teacher Recruitment and Internship Project for Success (TRIPS). TRIPS is a collaborative program involving the Atlanta Public Schools, Atlanta Federation of Teachers, Atlanta University, and Georgia State University in cooperation with the Georgia State Department of Education, the Office of the Mayor of Atlanta, and the American Federation of Teachers. The TRIPS program, which is in its second year of operation, is an intern-mentor alternative program designed to attract academically talented foreign language, mathematics and science teachers. The program thus far has involved sixteen interns and eight mentor teachers from the Atlanta Public Schools. TRIPS teachers receive summer training in pedagogy, and then are involved in a year long internship under the direction of a mentor teacher, and a college professor. TRIPS interns and mentors also participated in a week-

long summer workshop based on the AFT Educational Research and Dissemination Program. Mentors received specialized training in communication skills and conferencing, observation and analysis of teaching, evaluation, research and literature on supervision (Jensen, 1988).

At the national level, a number of approaches to create alternative paradigms have been proposed. The Holmes report and the Carnegie report call for changes in the preparation of teachers. In both reports, there is an implicit desire to attract people to teaching who might not have considered teaching as a career. Texas, New Jersey and Florida have made radical changes in their certification procedures in order to deal with the recruitment of teachers in to the profession. For example, the Florida Department of Education has enacted an alternative teacher education program through the establishment of teacher preparation centers. In these alternative centers, prospective teachers will be provided training that concentrates on research-based essential skills of teaching needed by the beginning teacher. The center concept allows the teacher to enter the program soon after being hired, without being delayed by regular university admission schedules.

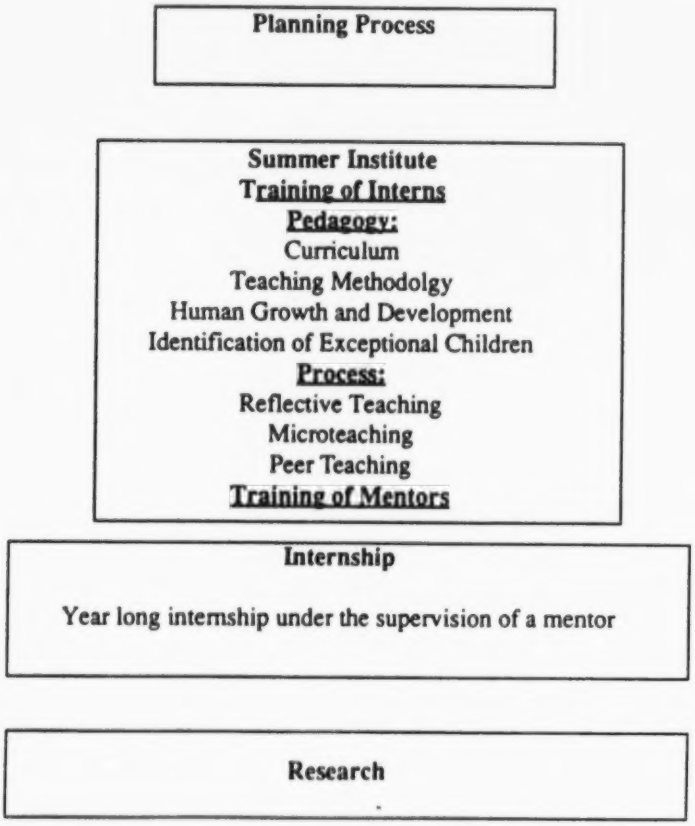
In order to attract additional teachers into critical shortage areas, the Georgia Board of Education, acting under the authority of the Quality Basic Education Act, has provided an alternative route to certification for critical teaching fields. Specifically, the Board has approved criteria for the way in which individuals may receive renewable teaching certificates to teach secondary foreign language, mathematics and science without going through a state-approved college or university teacher education program. To put the alternative route into practice, the Department of Education developed a document, "Alternative Certification Program for Critical Teaching Fields," which describes the alternative process. The alternative certification document describes the criteria that individuals would need to meet to obtain a teaching certificate. In addition to holding a degree from an accredited college or university, having an overall grade point average of 2.5 on a four-point scale and passing the Teacher Certification Test, teachers must complete a one-year supervised classroom internship in the candidates teaching field, and satisfactorily complete courses, or their equivalents in a) identification and education of children with special learning needs, b) curriculum, c) teaching methodology, and d) human growth and development. The coursework may be completed for college credit or for staff development unts. The alternative document includes detailed course guides, including objectives, suggested activities for the interns and instructors and suggested evaluation techniques for the curriculum, teaching methodology and human and growth and development courses.

Georgia Institute for the Preparation of Teachers

Early in 1988, the Georgia Department of Education proposed to sponsor an eight-week, resident summer program in which 30 teacher trainees in foreign language, mathematics and science would complete study and achieve competency in the areas of 1) human growth and development, 2) curriculum, 3) teaching methods, and 4) identification and education of children with special learning needs. The teacher trainees will also complete a one-year supervised internship under the guidance of a mentor teacher with the support of the local school system.

In the Fall of 1987, Dr. Werner Rogers, Superintendent of Schools, made a direct apeal to the Georgia Legislature to fund the summer institute and internship year. After a favorable reception from key legislators, he asked Dr. Candance Norton, Director of Teacher Education, to assist in identifiying a director and location. In February, 1988, the Georgia Department of Education entered into a contract with the Board of Regents providing for Dr. Rosalie Jensen to direct and coordinate the Georgia Institute for the Preparation of Teachers. This paper describes the nature of the institute, including the planning process, the summer institute, the internship phase and the research being carried out to study the effectiveness of the program. Figure 1 shows the major elements of the program.

Figure 1: The Georgia Model



Planning Process

Following the appointment of Rosalie Jensen as director for the summer program, the planning phase of the program began. Working together, the director and the Coordinator of Teacher Education Division for the Georgia Department of Education made key decisions about the first steps to take. Some of these decisions needed to be taken immediately because the timeline only permitted six months for planning, selecting a site, inviting participation from school systems and selecting teams of intern teachers and mentors.

One of the most immediate concerns was whether to award staff development credit or to approach one or more institutions of higher education to award college credit. With only months between inception and implementation, representatives of the Department of Education and the director of the program agreed that staff development credit was the only feasible choice. It appeared impossible to locate a college or university whose faculty and administration would approve an experimental program for credit on such short notice.

Selection of Participants

Early in the planning phase, State Superintendent Werner Rogers, sent a letter to all superintendents of local school systems inviting each system to participate in the project by recommending up to three teams consisting of an intern teacher and a mentor. Each intern had to meet state standards concerning content preparation and grade point average and had to be willing to attend the entire summer institute. The system also had to agree to guarantee the teacher trainee employment for the school year. Each mentor had to be teaching in the same field as the intern, be in the same school, and be willing to undertake one week of summer training in the mentoring process. The Department of Education agreed to fund housing costs, a meal allowance, one round trip from the participant's residence in Georgia to the institute site, and all books and required instructional materials. The department also agreed to pay an honorarium to each intern who returned to teach for the sponsoring school system and to pay an honorarium to each mentor who worked with an intern during the school year. Since staff development credit was awarded for each course, no tuition costs were involved.

Selection of Coordinators

Even though objectives, activities and evaluation components of all courses would be integrated in a wholistic model, the director became aware early in the process that coordinators of content areas were needed who would devote substantial time and effort to planning, selecting guest instructors, delivering instruction and evaluating the performance

of participants. The dual role of coordinator of clinical teaching experiences and coordinator of science instruction was accepted by Dr. Jack Hassard, Professor, Department of Curriculum and Instruction, Georgia State University, a seasoned professional in directing field-based courses, supervising interns and student teachers and engaging in all aspects of science education. Dr. Cynthia Kuhlman, resource teacher in the Atlanta Public Schools, agreed to coordinate the exceptional children and youth part of the program. The coordinator for foreign language instruction was Kim Mallette, a foreign language teacher in the Gwinnett County School District, and a doctoral student at the University of Georgia. Dr. Edith Guyton, Director of Field Experiences for the College of Education at Georgia State University, was selected to coordinate mentor training because of her extensive experience in conducting classes and workshops for student teacher supervisors and mentors.

During the planning phase, the instructional team was joined by a fulltime administrative assistant, Jackie Weekly, an employee of the Continuing Education Department of the University of Georgia. Ms. Weekly played a key role in planning and implementing the program, for she was the only member of the team who was on home base throughout all phases of the program.

Curriculum Decisions

Integration of Content. The state alternative certification document includes outlines for three of the four required courses that must be completed (in addition to a supervised year-long internship) to meet the coursework requirements for certification in the critical fields of foreign language, mathematics and science. These outlines include objectives, activities, and suggestions for instructional media and evaluation techniques. (See Figure 2)

Figure 2. Alternative Certification Program Curriculum Guide Sample Curriculum Planning Format

Managing the Classroom; Organizing Time, Space and Materials; and Communicating with Students

Suggested Objectives for Intern	Suggested Activities for Intern	Suggested Procedures for Curriculum/Methods Instructor	Suggested Evaluation Techniques
The intern will:			
1. Establish beginning year (quarter/ semester) routines by identifying school policies and procedures, and establishing classroom and record-keeping procedures.	1a. Read teacher and student handbooks to determine school policies on student attendance, tardies, and early dismissal; student behavior and its consequences, dress codes; grading; fire and disaster drills; lunch; instructional information such as length and changing of class periods.	1a. Discuss handbooks and school policies with intern. Clarify areas of confusion.	1a. Observe intern's ability to follow and carry out school policies and procedures.
	1b. Determine school procedures for textbook assignment, attendance and other office reports, and obtaining and recording student information. Plan for arrangement of classroom furniture and equipment for optimum use	1b. Discuss Checklist 1 on preparing the classroom (Appendix B). Demonstrate ways to effectively establish work areas, tables, desks, traffic patterns, etc.	1b. Observe classroom to see if teacher has teacher supplies, student handbooks and materials, general purpose and special equipment and all necessary school forms
	1c. Prepare seat assignments, establish grading procedures, determine first day and second day activities, and analyze how these differ from activities on subsequent days	1c. Discuss plans for first and second day activities	1c. Check lesson plans for the first week

One of the essentials of the model developed by the planning committee and the instructional team was the integration of objectives, activities and assessment in such a way that the four courses were not seen as separate entities. In order to begin the integration process, each objective was placed on index cards. In this form, the objectives could easily be reorganized and regrouped to create a logical flow of content and activities. The sequence was then turned into a master schedule. At this point, the instructional team began inviting guest speakers with special expertise related to the objectives and scheduling special activities, such as field trips.

Modeling. An important characteristic crucial to the implementation was an agreement by institute faculty to model classroom behavior. In other words, all instructors were committed to using desirable behaviors in their own teaching and evaluation rather than simply talking about them. A one-page evaluation form with five open-ended questions was prepared to use at the end of each week to verify that coordinators and guest presenters were indeed accomplishing the objectives planned for the week.

Themes. During the planning phase, the instructors began to consider two kinds of themes: process and pedagogical. As the planning progressed, themes also began to emerge for the eight weeks of the summer program and were incorporated into a master schedule to be shared with all participants the first day of class. The different themes identified will be developed in more detail in the next major section of the paper.

Evaluation of Participants. While developing activities the coordinators also turned their attention to methods of evaluating the participants. Some of the assessments built into the alternative certification document can only be made during the internship year because they apply to objectives that involve ongoing classroom practices. One task of the instructional staff and members of the Department of Education was to decide which objectives could be met completely during the summer and which objectives could not be met entirely through coursework and simulated practice. In order to assure that each intern teacher would be assessed on classroom skills, members of the planning team decided that the Department of Education would award credit at the end of the summer for the courses on human growth and development and exceptional children and youth, and would award credit for the courses in curriculum and instructional methods only after successful completion of the intern year. Success in the practice phase would be evaluated by the mentor teacher and a representative of the school system supervisory personnel.

Residential Nature of the Program

Early in the planning process the team learned that the participants could not be housed at the Continuing Education Center on a university campus, but would be living and having

classes at a nearby motel. The advantages of such living arrangements for participants are evident. In their evaluations later during the summer, several mentioned that he atmosphere at the hotel with conference rooms rather than classrooms was more conducive to the atmosphere of freedom and collegiality encouraged by the instructors. On the other hand, several drawbacks became obvious to the instructional staff. The administrative coordinator was not able to provide a quick turn-around time on copying and other services because of the necessity to travel back and forth from her office to the motel. Also, in addition to the expense to the institute budget for a room for each participant, the participants were not able to afford to eat all meals on site on a food allowance that would have sufficed in the university cafeteria or snack bar.

Since a crucial part of the planning was the integration of the content of the alternative certification document to form a smooth progression of teaching and learning, the next section will be devoted to expanding on the concepts related to the processes that have already been introduced.

Summer Institute Program

The summer institute was an eight-week (June 20 - August 12, 198) intensive program of pedagogical training for the interns, and one week of training for the mentors. The curriculum was based on a set of themes that served as an organizational and conceptual framework for the institute. These themes were: modeling, pedagogy, process, and mentoring.

Overall Structure of the Institute

In order to create a holistic pattern for the summer program, a weekly theme was identified, characteristic of the learning activities for each week. The themes were as follows:

- Week 1: Getting started
- Week 2: Reflective teaching
- Week 3: Focusing on learners
- Week 4: In the classroom
- Week 5: Putting it all together
- Week 6: Getting ready to take charge
- Week 7: Learning from teaching
- Week 8: Taking charge of instruction

The content of the institute was organized into two major themes: pedagogy and process. Pedagogical content included classroom management and communication,

organizing the curriculum, delivering instruction in foreign language, mathematics and science, microcomputer applications, evaluating students' knowledge and skills, human growth and development and identification of exceptional youth. The pedagogical themes constituted the knowledge and skills that the interns would need to meet certification requirements in Georgia according to the alternative certification procedures. The pedagogical knowledge was integrated into a curriculum plan during weeks one through six. The curriculum scope and sequence chart (Figure 3) below shows when the pedagogical themes were presented, and reflects the integrated nature of the curriculum.

Four process themes were used to provide an opportunity for the interns to consider their teaching, and to practice and apply pedagogical knowledge and skills. The process themes included reflective teaching, microteaching, peer teaching and cooperative small groups. The process themes were used throughout the eight weeks, and are shown on the curriculum scope and sequence chart. Details of the pedagogical and process themes follow.

Figure 3. Summer Institute Curriculum Scope and Sequence

Theme/week	M	T	W	T	F
Week 1.Getting started	cm	cm,rt di	cm	rt,hg di	oc,hg
Week 2. Reflective teaching	sv oc	rt,gs di,gs	oc	mc di	es,gs
Week 3. Focusing on learners	Holiday	hg,gs di	ey	oc,mt di	ey
Week 4. In the classroom	sv es	sv di	sv	sv di	sv oc
Week 5. Putting it all together	GH	GH	ey	ey,gs di	ey hg-gs
Week 6. Getting ready to take charge	ey hg-gs	oc di	ey	es di	oc hg-gs
Week 7. Learning from teaching	peer teaching and observing video tapes of teaching episodes				
Week 8. Taking charge of instruction	Foxfire HG&D cooperative group reports; Mentor training; mentor/intern interaction sessions (reflective and microteaching)				

Pedagogical Themes
- Classroom management (CM)
- Organizing the curriculum (OC)
- Evaluating students' knowledge and skills (ES)
- Delivering Instruction: foreign language, mathematics, science (DI)
- Microcomputer technologies (MC)
- Human growth and development (HG)
- Identification of exceptional youth (EY)

Process Themes
- Reflective teaching(RT)
- Microteaching skills and communication (MT)
- Peer teaching

Each week was planned in detail. The chart (Figure 4) shows the planning for the first week of instruction. Except for Tuesday and Thursday afternoons, which were designated for foreign language, mathematics and science methods, the interns met as a single group for instruction in pedagogy and process. These sessions varied quite a bit. During some sessions, the interns were involved in reflective teaching, while in others they might be engaged in small group discussions about classroom management or microcomputer applications for the classroom. In all cases, the activities interns were engaged in reflected the goals and objectives of the Alternative Certification Document.

Figure 4. Sample Weekly Schedule

Monday	Tuesday	Wednesday	Thursday	Friday
Overview Getting acquainted	Reflective teaching Planning for HG&D	Cooperative class arrangements Long-range planning	Reflective teaching, rounds 1 & 2 Observing high school classrooms	Planning instruction Teaching units Foxfire groups for HG&D
Beginning class period Beginning school year Rules & Procedures Class arrangement	Delivering instruction: foreign lang mathematics science	Independent work in resource center and curriculum laboratory	Delivering instruction: foreign lang. mathematics science	Applying research on time on task Class time Teaching style and classroom management Evaluation

The interns were also involved in several field experiences. During each morning of the fourth week of the summer program, the mathematics and science interns observed classes and worked with teachers at Cedar Shoals High School, while the foreign language teachers observed undergraduate foreign language classes at the University of Georgia. On July 18 and 19, the interns traveled to Valdosta State College to participate in the

Governer's Honors Program for the gifted where they met with instructors of foreign language, mathematics and sciences courses, observed class sessions, and talked with the high school students. On July 28, the science education interns went on and fossil collecting and geological field trip to the North Georgia mountains near Ringgold. In the course of working in the foxfire,cooperative small teams, some interns returned to Cedar Shoals to conduct video interviews of high school students as part of their human growth and development project. These field experiences were considered important to the overall instructional goals of the program, and received positive evaluations from the interns.

Modeling

One assumption that the staff made concerning the nature of instruction in the summer institute was that learning could be enhanced by modeling examples of effective teaching and learning. Throughout the summer, institute staff members (even invited guest speakers) were asked to demonstrate the behaviors they expected interns and mentors to master. For example, during the first week, when the goal of helping teachers initiate classroom rules and procedures was part of the pedagogical curriculum, the instructor involved the interns in establishing rules and procedure for the the summer institute, rather than simply giving a lecture.. In science instruction, inquiry was taught by having the interns solve problems, do experiments, observe and analyze science phenomena. If interpersonal problems arose among the participants, the staff used a classroom management approach, based on The EMPAC program to resolve the problem. Modeling was a theme that permeated all aspects of the summer institute.

Pedagogical Themes

The pedagogical content for the interns enrolled in the summer institute was based on the Georgia Department of Education document, "Alternative Certification Program for Critical Teaching Fields," knowledge and skills derived from the American Federation of Teachers Educational Research and Dissemination Program, and current literature and practice on effective teaching. The content was organized into several curriculum areas: classroom management and communication, organizing the curriculum, delivering instruction (strategies specific to foreign language, mathematics and science instruction), evaluating students knowledge and skills, microcomputer technologies, human growth and development and identification of exceptional youth. Each curriculum area will be briefly described, sample objectives listed and examples of activities for implementing the objectives presented.

Classroom management and communication. The pedagogical content for this curriculum area focused on helping interns establish routines and rules of classroom

behavior, as well as identifying and correcting disruptive behavior. Establishing a positive learning climate, stimulating student interest, and initiating and maintaining communication with the class are additional areas which were detailed. Samples of objectives developed for classroom management and communication include the following:

- Develop a set of rules for student behavior in the classroom, and a set of procedures for student responsibility and accountability.
- Demonstrate techniques to redirect off-task learners.
- Organize instructional time in ways that facilitate student learning.
- Use learning activities which are compatible with the physical environment.

Interns were involved in a variety of activities to meet classroom management and communication objectives. Classroom management and communication content constituted an important theme throughout the summer. Since many of the interns in the program lacked classroom teaching experience, the institute staff felt it was important to provide opportunities for the interns to discuss classroom management strategies. To facilitate this, the staff used a nationally acclaimed classroom management program. The program, Effective Management for Positive Achievement in the Classroom, (EMPAC) is a video series which features master teachers who have combined research and personal experience to create effective classroom management systems. At various points throughout the summer, one of the video tape programs was shown, and was used in conjunction with the EMPAC program booklet.

The interns were involved in a variety of classroom management and communication activities. For example, to help students learn how to organize instructional time in ways that facilitate student learning, the following activity was used:

> Activity: Instructor presents concept of cooperative small groups and asks participants to think of ways in which the idea has already been applied during the first few days of the program. Participants are given a few minutes to write about an experience from the past in which the concept has been applied in a classroom setting. Instructor calls on several participants to describe experiences and asks what teacher or group characteristics encourage successful small group cooperation. One participant makes a list of the characteristics on the flipchart. Instructor collects what participants have written. Instructor separates the group into teams (mixed with respect to teaching fields) and gives instructions for activities from the document, "Research on Cooperative Small Groups." Participants spend about an hour participating in the activities. Instructor interacts with the groups to model appropriate classroom behavior.

Organizing the Curriculum. Knowledge about curriculum was designed to be relevant to the interns' area of expertise, complimented with general principles of curriculum. Interns worked on curriculum content such as identifying and sequencing instructional objectives, defining strategies of teaching, selecting resources and determining measures for instruction. To provide insight into the content of this pedagogical theme, a few objectives from this area are listed:

- Analyze historical development of subject area curriculum.
- Write objectives that state student behavior in measurable terms.
- Develop activities which relate to lesson objectives.
- Write assessment items in lesson plans which incorporate higher level thinking skills.

Much of the content for organizing the curriculum was combined with the pedagogical content (delivering instruction) in each of the content areas, e.g. foreign language, mathematics and science. Interns had many opportunities to participate in activities related to these objectives. Each intern developed a TPAI unit of teaching consisting of five lesson plans, evaluation materials, and materials for instruction. A demonstration lesson was presented to the entire group of interns during a peer teaching session in week seven. The interns also taught reflective teaching and microteaching lessons, providing them with further opportunities to practice writing objectives, planning activities, and assessing student learning.

There were also specific lessons designed for all the interns that dealt with generic procedures of lesson planning and curriculum development. Here, for example, is an activity designed to help students understand the process of lesson planning.

> Activity: Instructor leads participants into determining factors that go into making a good lesson plan by asking question such as: What part do objectives play in a lesson plan? How are activities and resources related to objectives? How are assessments related to objectives? Participants work in groups of 3 or 4 (in same teaching field) to consider Hunter's design for effective teaching. Each group is given blank transparencies or flipchart paper to outline their response. The full group is asked to refer to a selection of sample lesson plans. Participants make a table on a transparency to indicate the strengths and possible ways of improving each lesson plan.

Delivering Instruction. This pedagogical area refers to three subsections each containing specific methods and strategies unique to the teaching fields of foreign language, mathematics and science. The content for delivering instruction was drawn from the methodology and strategies developed by professors in the subject area specializations. Although this was not considered the most important pedagogical area, it was highlighted

in the sense that each of the content areas met separately twice a week with the subject area coordinators. The methods sections were opportunities for the coordinators to present the very latest in methods and strategies for the teaching of foreign language, mathematics and science. Activities during these sessions were characterized as experiential and hands-on. The pedagogy of each of the subject areas will be discussed separately.

Foreign Language

Topics for the foreign language sessions were developed by Kim Mallette, a foreign language specialist from the Gwinnett County Schools. Topics included the proficiency-oriented foreign language classroom, TPAI and foreign language teaching, listening comprehension, oral proficiency, reading and writing in the foreign language classroom, student learning styles and audiovisual aids.

The following were typical objectives for the foreign language sessions.

- Explore theory and demonstrate methods of teaching the skill of speaking.
- Explore rationale and demonstrate methods of teaching the cultural content.
- Arrive at operant philosophy for the use of foreign language vs native language in the classroom.

In foreign language sessions, participants frequently presented microteaching lessons to demonstrate methods of teaching French, Spanish, German and Russian.

The content of the foreign language sessions was derived from the section of the Alternative Certification document, entitled "Delivering Instruction: Foreign Language." The Chart (Figure 5) shows the initial parts of the this section.

Figure 5. Delivering Instruction: Foreign Language
Sample Suggested Objectives and Activities

Suggested Objectives for Intern	Suggested Activities for Intern	Suggested Procedures for Curriculum/Methods Instructor	Suggested Evaluation Techniques
The intern will:			
1. Prepare rationale to justify study of foreign language for all students.	1a. Discuss and establish rationale.	1a. Discuss importance of motivation in language acquisition. Discuss role of foreign language in preparing student for careers, in increasing cross-cultural awareness, and in increasing understanding of our language and culture. Use The Tongue-tied American, by Paul Simon as resource.	1a-b. Observe and analyze intern's performance in role playing and conversation with parents and administrators.
	1b. Role play conversation with student, parents and administrator.	1b. Demonstrate the use of role playing.	
2. Arrive at operant philosophy for use of foreign language v. native language in classroom.	2a. Discuss.	2a. Discuss "natural approach" as opposed to "direct method" as opposed to "grammar-translation" method. Use Teaching Language in Context, by Alice Omaggio as resource.	2a. Check intern's understanding of major methodologies.
	2b. Formulate list of directions, responses, and classroom management terminology in the target language.	2b. Demonstrate list of directions, responses and classroom management terminology in the target language. Use native informants, dictionaries and phrase books as resources.	2b. Check adequacy of foreign language instructional terminology.

Mathematics

The mathematics education instruction was presented by Rosalie Jensen, Head of the Mathematics and Computer Science Department, North Georgia College. Some of the topics that guided the instruction in mathematics methods included: using manipulative aids, the secondary mathematics curriculum, using geometric challenges, problem solving, reading skills in mathematics, discrete mathematics, activities for teaching fractions, decimals (and other mathematical concepts), computers and mathematics teaching, and aids and techniques for teaching probability and statistics.

Sample objectives for the mathematics education sessions were as follows.

- Use mathematics manipulatives, visual aids and models useful for developing math concepts, skills, procedures, algorithms and for solving problems.
- Evaluate computer software and available printed materials in terms of their appropriateness and effectiveness in helping students learn mathematics.
- Identify and use strategies which are relevant to the objectives and to the mathematics and appropriate for particular learners.
- Design and implement a plan for using calculators and computers in mathematics instruction.

Mathematics education lessons involved the interns in hands-on activities throughout the program. The sessions, like foreign language and science, were four hours in length. Each session consisted of a variety of activities involving the interns in mathematics education content. For example, here is a brief description of an activity to help the interns identify and use strategies which are relevant to the objectives and mathematics and appropriate for particular learners.

> Activity: In small groups, pick a math topic. Within that topic identify a concept or skill and a problem-solving situation and choose strategies to teach each of these. Describe intended class of learners and state how each strategy is relevant to the objective and appropriate for learners.

The following activity was designed to help the interns learn to solve problems by applying trail and error.

> Activity: Instructor explains the difference between routine and non-routine problems and gives examples of each. Instructor describes Polya's four steps of problem solving (1. understand the problem, 2. devise a plan, 3. carry out the plan, 4. look back) and discusses behaviors which indicate the application of each step. Instructor presents several problems that could be solved by a trial and error strategy and leads the participants into solving one by using Polya's four steps. Participants, in small groups, solve selected problems provided by the instructor. A spokeperson for each group presents the group's solution to one of the problems and leads a discussion of other approaches that might be

taken.

Lessons for the mathematics curriculum were spelled out in detail. Following is a lesson plan from the second week of the mathematics methods lessons developed by Rosalie Jensen. The reference numbers (MC 7, MT 1, e.g.) refer to the objectives in the Alternative Certification Document.

Mathematics Education Lesson Plan

WEEK 2 DAY 2 THEME: PLANNING FOR INSTRUCTION

A and B. Follow the general plan outlined for A and B, Week 1, Day 4, Mathematics. Begin the period with an interesting problem for participants to work and review the work of the previous class period.

Resources. Media: Transparency from F. Thompson, Five-Minute Challenges for Secondary School, Activity Resources Co., 1988.

C. Topics. Classroom management guidelines for use in a secondary school mathematics classroom.

Types of exceptional learners in a secondary mathematics classroom.

Modification of instuction and materials for exceptional learners in a mathematics classroom.

Objectives. Alternative Certification: MC 1-2; MC 10

H.B. 671: To adopt instruction in a mathematics classroom.

Activities. Guest speaker Irene Bowden will make a presentation addressing the topics and objectives above. (A sample of materials, distributed to participants is attached to lesson plan.)

D. Topic. Uses of bulletin boards in teaching mathematics.

Objectives. Alternative Certification: MC 7; MT 1; MT 4

Activities. Instructor presents examples of displays and leads participants into suggesting ways in which the displays could be used to enhance instruction, e.g., introduction of concepts, review, etc.

Resources. Media: Multicultural Mathematics: Posters and Activities, National Council of Teachers of Mathematics, Reston, VA, 1984.

Materials: Sobel text, pp. 40-47

Assessment. Did everyone participate?

Did each participant include a sketch of at least one bulletin board idea to supplement lesson plans (Week 6)?

Did lesson plans reflect the use of bulletin board displays?

E. Topic. Choosing a topic for a teaching unit (portfolio) due Week 6.

Objectives. Alternative Certification: FL 10; MT 11; SC 9

TPAI: I; II; III

Activities. Instructor distributes outlines that were submitted previously so that participants can see the range of topics in the three courses that they chose to research. Instructor leads participants into a discussion of the courses that first year teachers are likely to be assigned. Participants are encouraged to choose a topic within a course that they are likely to teach during the first year, or that is being taught in the summer school program in which they will participate during Week 4.

Instructor gives examples of two formats that participants should consider using to construct lesson plans and indicates how each satisfies guidelines for lesson preparation in the TPAI.

Assignment. Instructor assigns pp. 27-49 of Sobel textbook for participants to read as they plan teaching units.

Science

The science education instruction was presented by Jack Hassard, Professor Department of Curriculum and Instruction, Georgia State University. The syllabus for the science education instruction was guided by the following topics: an inquiry in the philosophy and nature of science teaching, how adolescents learn science, goals and objectives of science teaching, models of science teaching, strategies and techniques of science teaching, planning and evaluating in science teaching, managing the science classroom, computers and other technologies, science curriculum projects, and science, technology and societal issues.

Objectives for the science education instruction included goals such as:

- Arrive at an operant philosophy for the use of hands-on-science.
- Describe the theory and demonstrate the practical application of conceptual change teaching for various concepts in science.
- Predict implications of students' reasoning patterns on methods of teaching.
- Apply inquiry teaching models to science teaching situations.

Science sessions always included hands-on, inquiry oriented activities. Sessions were designed to be experiential, giving interns opportunities to manipulate materials, design experiments and activities, and discuss the implications of various strategies.

The following activity was used to help the interns understand the nature of an inquiry-oriented hands-on science teaching:

> Activity: Instructor distributes a mystery object (fossil crinoid stem from Ringgold, Georgia) to each student. Objects are placed in students' hands and they are told not look at them. Instructor asks students to observe the object by writing observations, and by making a drawing of the object (without looking at the object). Each student is also given a piece of modeling clay, and is asked to use it to replicate the mystery object. Teacher asks students for observations, and has them compare their models and drawings with near-by students. Teacher asks students to make inferences: What is it? How old is it? How was it made? Students look at their mystery objects, compare with fellow students, and revise earlier hypotheses. Teacher asks interns if they thought this "lesson" was an example of inquiry teaching, and why they think so. Teacher asks how this kind of lesson is different from a more direct method of teaching, for example a lecture.

To develop a spirit of inquiry and problem solving, each science education session began with a "Thinker." Thinkers were actually discrepant events designed to help interns

learn ways to stimulate high level thinking in secondary science classrooms. Here is the first "thinker" that was used in the summer:

Activity: Instructor challenges interns to estimate how many pennies can be put into a glass full of water. Estimates are recorded on flipchart paper. Instructor proceeds to put pennies into the glass. Students discover that the glass of can hold as many as 25 - 40 pennies with spilling any water. Instructor asks interns to theorize by having them a) verbally give explanations, b) draw pictures to explain their idea. Instructor explains that on each science education session, class will begin with a "thinker." Instructor introduces the concept of discrepant event and asks interns to explain how these events relate to thinking and motivation in secondary science teaching.

To give the interns another model of lesson planning, the science education lesson plans were organized in a form different from the mathematics education lesson plans. The science education course was organized into a series of "workshops" on different topics. The chart (Figure 6) shows a lesson plan for the third science education session on the topic: "philosophy, goals and objectives of science teaching."

Figure 6. Science Education Lesson Plan

Workshop 3: Philosophy, Goals and Objectives of Science Teaching

Goals and Objectives	Procedures	Materials	Evaluation
Thinker for the Day	• Teacher gives groups of students a cup of water, and 3 strips of paper, each with a black line. Teacher asks students what they think might happen if the strip is held in the water for a few minutes. Students generate predictions, and then test them by placing strips in the water. Teacher asks the students to explain their observations.	paper towels cups, water black marking pens	
Historical context of science teaching			
15. Given a historical setting, describe the major elements of a science course	• Teacher shows a time line dividing science education into three ages: pre-1950, 1960s to present, and late 1980s into the future. The class is divided into teams, and each team is given a problem: "Given this list of characteristics of the period in question, identify and describe a course of study in a high school that would be an outgrowth of these characteristics." Your description should be summarized verbally and graphically on chart paper. It should include at least these elements: 1) philosophy and rationale statement; 2) sample objectives; 3) Who would take this course? 4) Nature of the learning activities; 5) The extent of integration with other sciences and subjects; 6). Use of references, texts and other materials; 7) Evaluation of students; 8) Use of the laboratory.	Transparency of time line Textbooks from each era List of historical characteristics. Trowbridge, page 256. Chart paper Markers Read chapter 16 in Trowbridge.	
	• Teacher asks each group to explain and defend their "course" of study. Teacher leads the class in a discussion: How do these courses differ? Are the course activities consistent with the course philosophy and objectives? Which course is closest to your own philosophy?		How do the courses compare? Do students see real differences?
Goals for Science Teaching			
16. Identify the Project synthesis goal areas.	• Teacher describes recent attempt to describe goal areas for science courses. Teacher describes the four goal areas of Project Synthesis: 1) personal needs 2) social issues; 3) fundamental knowledge and 4) careers	Overhead transparency of goal areas. Read chapter 7 in Trowbridge	How do project synthesis goals compare with students preconceived goals of science education?
17. Apply the "science as inquiry" subthemes to science teaching situations	• Teacher outlines four subthemes of the domain of inquiry teaching: 1. Processes or methods of science 2. Nature of scientific knowledge 3. Inquiry as a way of thought: a. values clarification b. process skills c. problem solving d. decision-making 4. Customs of inquiry	Overhead transparency	

Science Education Lesson Plan---Continued

	• Teacher explains that we will focus on items 2 and 3, the process of science, and strategies of inquiry-oriented thinking.		
18 Differentiate and use basic science process skills and integrated science process skills	• Teacher divides class into small groups. Each group is given a candle, modeling clay, matches and data sheet. Teacher asks students to *observe* a candle, light it and continue to observe and record their observations.	candle modeling clay matches data sheet: Funk, p.7	
	• Teacher gives each group a box containing mystery objects. Students are asked to make a list of *inferences* and *observations* for the mystery object by shaking, tilting, and moving the box about, but not looking inside.	several mystery boxes: shoe boxes with objects within data sheet, Funk, p.74	
	• Teacher asks students to comment on both activities. Teacher identifies the process skills used as basic science skills, and identifies additional basic science process skills: *classification, communication, metric measurement, prediction.*		Can class predict how these processes can be used in science lessons?
	• Teacher introduces the notion that some process skills are more involved: they are called integrated science process skills. Teacher identifies the following as integrated science process skills: identifying variables, constructing a table of data, constructing a graph, describing relationships between variables, acquiring and processing your own data, analyzing investigations, constructing hypotheses, defining variables operationally, designing investigations, and experimenting.		
	• Teacher selects one of the skills: constructing hypotheses, and presents this problem: What factors affect how fast an object (such as a marble) will roll down an incline? Each team is given materials, and asked to experiment with the materials, and to construct at least three hypotheses.	rulers marbles of various sizes.	
	• Teacher brings the groups together, and asks for volunteers to describe their hypotheses. Teacher asks the class to analyze the activity. To what extent are "integrated science process skills" used in this activity. How are they different than basic science process skills? Should all high school students be exposed to this?		Can class differentiate basic and integrated science processes?
Challenge of the Unknown 19 Apply strategies of inquiry in a science teaching situation	• Teacher shows students four types of inquiry strategies (see above). Explains that we will explore values clarification later in the course (on the topics of STS). Teacher explains for each of the succeeding days, we will see a video from the program, The Challenge of the Unknown. Teacher explains that the CU program focuses on problem solving, and how mathematics and science can be made relevant to students.	Challenge of the Unknown Situation: Where Am I?	Can teachers describe ways these videos could be used in a secondary science course?
20. Prepare a mini-inquiry lesson, which focuses on inquiry, includes objectives, teaching procedures, and materials.	• Teacher informs class that each student will prepare a mini-lesson that focuses on inquiry. (lesson should be about 5 minutes in length and will be taught to a small group of peers). Lesson will be taught in rounds during the next class session.	Prepare a mini-inquiry lesson	
Journal	• Teacher asks students to write for 2 minutes in their journal about what they learned in today's class.		

Microcomputer Applications The institute staff felt is was important to introduce and give the interns hands-on experiences with microcomputers. The twin themes of learning with and learning about microcomputer technology was a guiding principle. Interns were able to use the microcomputers at the University of Georgia educational technology center, and an Apple II GS was housed in the institute resource room, and was available to the interns throughout the summer. The following are the objectives that guided the microcomputer part of the institute curriculum:

- identify how computers and other technologies should be used in the school curriculum.
- describe how software programs can be used to facilitate the learning of content objectives.
- describe how computer activities could be used in the general curriculum.
- describe how technologies (microcomputers, print and television) can be integrated to enhance learning.
- describe activities that can be used to help teachers and students learn about microcomputers.
- describe objectives and possible activities that would help achieve computer literacy among students.
- describe how the computer could be used as a tool for the teacher.

The first exposure to microcomputers was a hands-on experience in the educational technology center at the University of Georgia. In a three-hour workshop, the interns were introduced to word processing on the Apple IIe computer (Appleworks). This was followed-up with small group sessions in the resource center at which time specific questions were answered about Appleworks. Students were provided with Appleworks software and data disks, and were encouraged to do some of their assignments using the computer. The results of the summer program indicated that over half the interns used the microcomputer to prepare a Teacher Performance Assessment Instrument (TPAI) unit. The TPAI is a performance based set of teaching competencies that all beginning teachers must pass. The TPAI includes the evaluation guidelines for the development of teaching unit.

Subsequent work with computer technology occurred in the subject matter sessions. In the science section, students worked in small groups to review a number of software programs that could be used in high school biology, physical science, and chemistry. In mathematics, the interns worked with calculators as well as reviewing software, and also participated in a presentation on VICE mathematics (Visually Interactive Computer Experiences) by three Georgia high school mathematics teachers.

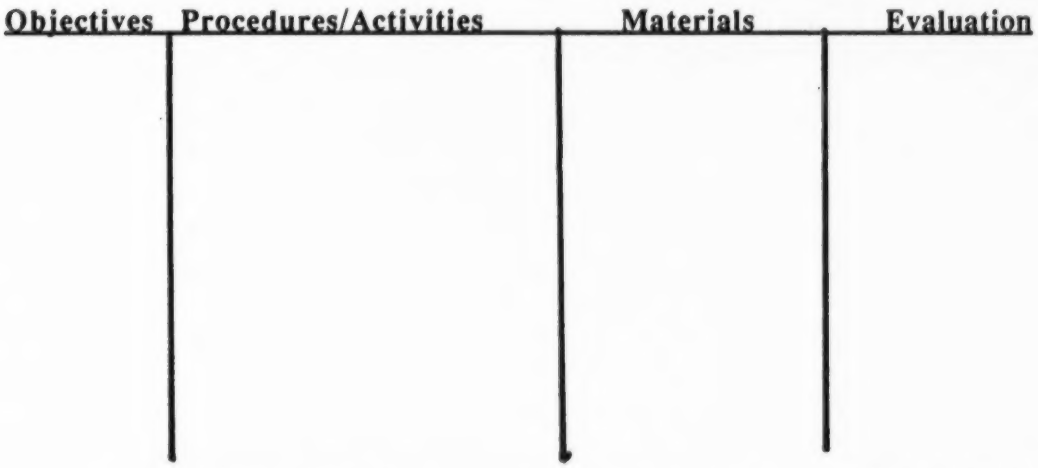
Evaluating Students' Knowledge and Skills The interns were introduced to evaluation in a variety of ways. Two guest speakers presented content on evaluation and

testing. One presenter conducted a workshop on designing a grading system for secondary school students, and another presented information on assessment principles and how to analyze test results. The interns were involved in writing assessment items, designing pre-tests, and developing summative tests in their respective subject areas. Since each had to develop a TPAI unit, evaluating students' knowledge and skills was applied to a set of lesson plans. Examples of objectives in this pedagogical area are as follows:

- use a logical sequence of evaluation of students from pre-test through progress checks and posttest.
- generate acceptable test items or procedures for multiple choice, matching, short answer, fill-in-the blank, open ended, discussion, oral response and observation of performance.
- demonstrate how results of student evaluation can be used to evaluate the instruction and plan for remediation, enrichment, and revision of instructional procedures.

Since evaluation should be tied directly to objectives and instructional procedures, each intern developed a TPAI unit. Activities were scheduled in the subject matter sessions to help interns write evaluation procedures related to the objectives and procedures of their units. The interns were encouraged to plan their TPAI units using a lesson plan model like the one shown here (Figure 7):

Figure 7. Lesson Plan Model



Human Growth and Development The pedagogy of human growth and development was handled in way that was unique to the summer institute. The twenty-three interns were divided into six small group cooperative teams, which were referred to throughout the summer as "foxfire groups." One of the institute instructors used the term because of its association with an experiential community based form of instruction

developed by Eliot Wigginton. Each team selected a topic that they would investigate during the first seven weeks of the summer, and then present to the whole group during the eighth week. After the topics were selected, each team was asked to create a name for their group that reflected, in a metaphorical way, the meaning of the topic. The team names and topics are shown below.

Human Growth and Development Foxfire Groups and Topics

Foxfire Team	Topic
The Tattletells	Physical Development
The Erupters	Personality Development
Yuppie Puppies	Social Development
The Knotholes	Cognitive Development
Tabula Rasa	Moral Development
The Dating Gang	Adolescent Sexuality

The groups were told that they were expert groups, and that they would be responsible for teaching the whole class about the topic that they chose. The instructors explained that this procedure was an example of a highly effective instructional strategy called cooperative small group learning. Throughout the summer, time was provided for the foxfire groups to meet for planning and check-in time, since much of the research was done individually. Teams were aware that they were expected to utilize effective teaching strategies (small group work, use of visual aids, role playing, video tape interviews), as opposed to simply lecturing on the content related to their topic.

Several guest speakers were invited to touch on topics related to human growth and development. One speaker presented information on cognitive development, and involved the participants in several Piaget tasks designed to evaluate students' ability to think at the concrete and formal levels. Another guest speaker presented sessions on how to teach concepts.

During the eighth week, the interns were involved in six three-hour sessions during which time the foxfire groups made their reports. The reports were varied, and provided an opportunity for the students to deal with objectives such as:

- describe adolescence as a biological, psychological and cultural phenomenon.
- describe the nature of Erikson's stage of "identify vs. role of confusion."
- describe the bases for and variations between self-concept and self-esteem among adolescents.
- describe Jean Piaget's theory of cognitive development.

The activities that the foxfire groups presented included a video tape of interviews interns made of adolescents at Cedar Shoals High School on the topic of self-concept and family relationships, a film entitled "To Sir With Love," depicting high school students in a London urban school, and small group activities recalling physical traits of adolescents. The foxfire groups stimulated lively discussions and debates on issues ranging from teenage sexuality and morality to cognitive development.

Identifying Exceptional Children and Youth The pedagogical area of exceptional children and youth was presented by Cynthia Kuhlman, an instructional specialist in the Atlanta Public Schools. The sessions on exceptional children and youth dealt with the following topics: the major provisions of P.L. 94-142, identification of student behaviors which warrant referral, characteristics of mentally handicapped, specific learning disabilities, behavior disorders, severely emotionally disturbed, visually-impaired, deaf-blind, speech-language disorders, hearing-impaired, orthopedically handicapped, and gifted, the referral and IEP process, uses of assessment information, educators' responsibilities regarding the student with special needs, resources, teaching strategies, working with parents, and cooperating with special education personnel.

Some of the objectives that instruction was planned for included:

- describe State and Federal legislation and litigation impacting programs for exceptional learners.
- describe the major characteristics and instructional implications for teaching the mentally handicapped.
- demonstrate how to assess academic achievement and visual motor integration.
- describe the major characteristics and instructional implications for teaching the gifted.

The activities that supported the instruction about exceptional children and youth were varied. Dr. Kuhlman presented current information on the topics cited above, and involved the students in small and large group discussions. Students were involved in studying individual students using the case study method. The interns also visited Dr. Kenneth Ricker, professor of science education at the University of Georgia. Dr. Ricker is a nationally known expect on exceptional children and youth, and specializes in physically and visually disabled students. As part of the exceptional children and youth curriculum, the staff planned a three-day trip to the Governor's Honors Program at Valdosta State College to learn first hand about a program for one of the exceptionalities: the gifted.

Process Themes

One of the crucial aspects of the summer institute was how to provide clinical teaching experiences in a laboratory setting that would be meaningful and beneficial to the interns as they prepared for their fall teaching assignments. A decision was made to utilize

three different clinical or laboratory models in order to reach this goal. The models provided the strategies that would enable the interns to "process" the act of teaching in different forms. The models were considered by the institute staff as the process themes, enabling the interns to make a link between pedagogy and practice. The process themes are as follows:

- Reflective teaching
- Microteaching
- Peer teaching

Reflective teaching was introduced during the first and second weeks of the institute, microteaching during the fourth, and peer teaching during the seventh week. In each case, interns had the opportunity to teach short lessons and receive feedback on their teaching from peers and the instructors. The process themes were also conceptualized as tools that the interns and mentors would use during the the internship phase of the project. The philosophy of being reflective, as well as working on specific teaching skills, and occasionally observing video tapes of their teaching were suggested as integral intern-mentor activities. Following is a brief description of each of these process themes.

Reflective teaching

This laboratory experience was developed at the Ohio State University as an alternative laboratory experience for undergraduate methods courses. The reflective teaching model has been used in undergraduate and inservice teacher education programs. According to the developers, reflective teaching is a type of peer teaching that provides firsthand experience using a model of reality. It provides practice with feedback or knowledge of results. In reflective teaching, participants have an opportunity to experience the complete act of teaching---planning, execution and evaluation.

The lessons that the interns teach during the reflective teaching were developed at Ohio State University, and are contained in the published reflective teaching materials distributed by Phi Delta Kappa. Over thirty lessons (in the affective, cognitive and psycho-motor domain) have been developed. The lessons contain background information about the lesson, the objective, materials needed, special conditions and notes on ending the lesson. Supplementary materials include a learner satisfaction form, scoring boxes, tests, as well as charts and diagrams. To get a flavor of the lessons, here are a sample of objectives from several of the lessons.

Reflective Teaching Lessons and Objectives

Lesson Title	Objective
The Arrowhead Task	Your goal is to get as many learners as possible to correctly identify the parts of flint arrowheads. You will have 15 minutes in which to accomplish your goal.

The Block Diagram	Your goal is to get as many of your learners as possible to produce an exact replica of the blocks as shown on the attached diagram. You will have 10 minutes in which to accomplish your goal.
The Manual Alphabet Task	Your goal is to get as many of your learners as possible to spell "Be glad of who you are" using the manual alphabet. You will have 15 minutes in which to accomplish your goal.

During reflective teaching, the 23 interns were divided into six teams. One person in each group was identified as the first designated teacher. Each designated teacher was given the same Reflective Teaching Lesson (RTL) to prepare the next time the interns met. During the interim, each designated teacher prepared to teach, determining methods and procedures. Designated teachers were encouraged to teach their lesson any way they wished. When the interns assembled for the next reflective teaching session, the group was divided into reflective teaching groups. Each designated teacher taught a 15 minute lesson. Near the end of the lesson, the instructor provided the designated teacher with cognitive tests and learner satisfaction forms, which were administered to the learners in each lesson group. The learner satisfaction form provided the designated teacher with feedback from the learners on the following questions:

1. During the lesson how satisfied were you as a learner?
   _____ very satisfied
   _____ satisfied
   _____ unsatisfied
   _____ very unsatisfied
2. What could your teacher have done to increase your satisfaction?

At the end of the evaluation session the designated teacher facilitated within each small group a 10-minute reflective discussion teaching session. The purpose of these sessions wasto provide a post-teaching clinical opportunity to consider the teaching process thoughtfully, analytically and objectively. In short, to be reflective about teaching. The designated teachers were provided with questions which they could use to guide their reflective teaching discussion session. Questions included: What knowledge, skills, or attitudes were you hoping to develop in your learners? To what extent were you successful in your effort? What do your learners think? In developing your instructional ideas, how did you go about building your ideas into a teaching method, deciding whether or not the method you had in mind would work, and modifying your ideas into a final teaching method? What is the reaction of learners to the teaching method used?

When each group finished its reflective teaching discussion, the instructor assembled all the groups for a large group reflective session to explore the experience and develop some generalized principles of teaching. These sessions always started off by having the designated teachers briefly describe the method they used to teach the lesson. Since they all presented the same RTL, the comparisons were interesting and valuable experiences. The interns observed first-hand that a given objective could be met in a multitude of ways. The instructor asked additional questions, such as: How successful was your methodology in bringing about learning and satisfaction? What was your teacher like or what did your teacher do that you believe contributed to learning and satisfaction? What did you learn or rediscover about teaching? What do you believe makes a teacher effective?

In order to provide an opportunity for all the interns to teach a reflective teaching lesson, rounds of reflective teaching were repeated several times over two days. By the middle of the second week, all interns had taught a reflective teaching lesson.

We felt strongly that the reflective teaching lessons helped establish an attitude of "reflection" which carried over to other aspects of learning in the institute. The discussions that were generated as a result of the "rounds" of teaching helped the interns focus upon important questions about the act of teaching.

Microteaching

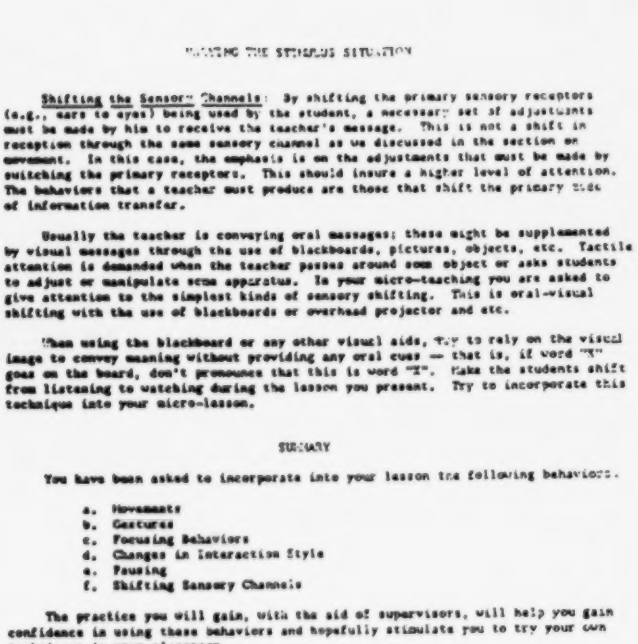
Microteaching is a very different form of laboratory experience for the preparation of teachers. In microteaching, specific "technical" skills are practiced with a small group of pupils who may be peers. In the summer institute, the microteaching sessions were presented to peers. Microteaching was developed by Allen and Ryan at Stanford University. It has been used quite extensively in pre- and inservice teacher education programs. In microteaching, unlike reflective teaching, the teaching session is often videotaped, and played back for feedback purposes. Microteaching lessons are usually very brief, often no more than five minutes.

In the summer institute the staff introduced six skills that are associated with microteaching. Each skill was briefly introduced to the whole group. The group of interns was divided into six groups, each group assuming responsibility for teaching about, and presenting a microteaching lesson to the whole group.

One of the skills that was introduced was "varying the stimulus situation." In learning about this skill, the interns were provided with a brief narrative describing the nature of the skill, and a peer evaluation and feedback form. The narrative in this case explained a number of attention producing behaviors that are associated with effective teaching. These behaviors included movement, gestures, focusing, interaction styles,

pausing and shifting sensory channels (auditory, visual). The team responsible for this skill prepared a brief lesson that would focus on this skill. The lesson was presented by one of the interns in the group, and the lesson was videotaped. Another intern in the group presented background information to the class about the skill. After the lesson, another member of the group facilitated a discussion of the teaching episode. The video tape was available for playback when required.

Figure 8. Microteaching Skill and Feedback Form Varying the Stimulus Situation



VARYING THE STIMULUS SITUATION

Shifting the Sensory Channels: By shifting the primary sensory receptors (e.g., ears to eyes) being used by the student, a necessary set of adjustments must be made by him to receive the teacher's message. This is not a shift in reception through the same sensory channel as we discussed in the section on movement. In this case, the emphasis is on the adjustments that must be made by switching the primary receptors. This should insure a higher level of attention. The behaviors that a teacher must produce are those that shift the primary mode of information transfer.

Usually the teacher is conveying oral messages; these might be supplemented by visual messages through the use of blackboards, pictures, objects, etc. Tactile attention is demanded when the teacher passes around some object or asks students to adjust or manipulate some apparatus. In your micro-teaching you are asked to give attention to the simplest kinds of sensory shifting. This is oral-visual shifting with the use of blackboards or overhead projector and etc.

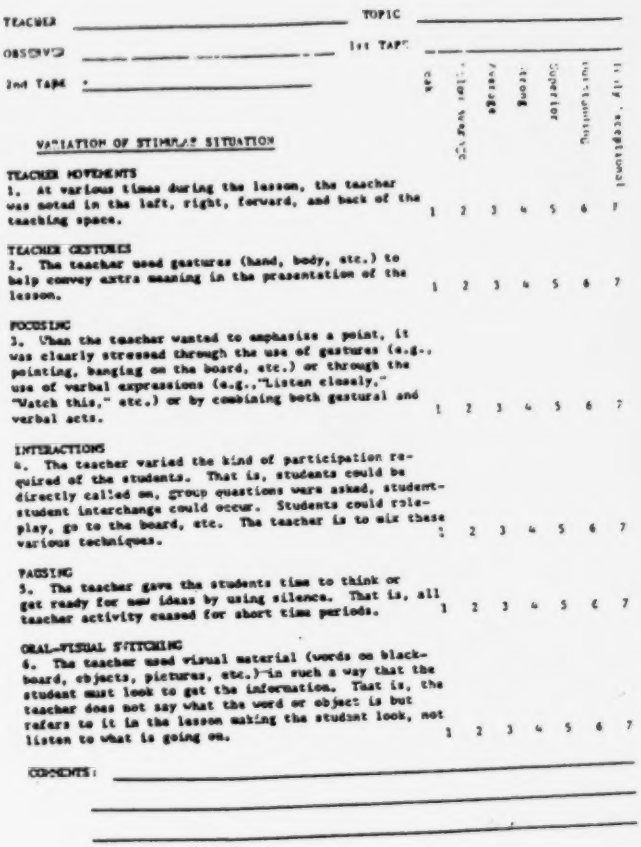
When using the blackboard or any other visual aids, try to rely on the visual image to convey meaning without providing any oral cues — that is, if word "X" goes on the board, don't pronounce that this is word "X". Make the students shift from listening to watching during the lesson you present. Try to incorporate this technique into your micro-lesson.

SUMMARY

You have been asked to incorporate into your lesson the following behaviors:

a. Movements
b. Gestures
c. Focusing Behaviors
d. Changes in Interaction Style
e. Pausing
f. Shifting Sensory Channels

The practice you will gain, with the aid of supervisors, will help you gain confidence in using these behaviors and hopefully stimulate you to try your own techniques in your classroom.



TEACHER _____ TOPIC _____

OBSERVER _____ 1st TAPE _____

2nd Tape _____

VARIATION OF STIMULUS SITUATION

Low | High

TEACHER MOVEMENTS
1. At various times during the lesson, the teacher was noted in the left, right, forward, and back of the teaching space. 1 2 3 4 5 6 7

TEACHER GESTURES
2. The teacher used gestures (hand, body, etc.) to help convey extra meaning in the presentation of the lesson. 1 2 3 4 5 6 7

FOCUSING
3. When the teacher wanted to emphasize a point, it was clearly stressed through the use of gestures (e.g., pointing, banging on the board, etc.) or through the use of verbal expressions (e.g.,"Listen closely," "Watch this," etc.) or by combining both gestural and verbal acts. 1 2 3 4 5 6 7

INTERACTIONS
4. The teacher varied the kind of participation required of the students. That is, students could be directly called on, group questions were asked, student-student interchange could occur. Students could role-play, go to the board, etc. The teacher is to mix these various techniques. 1 2 3 4 5 6 7

PAUSING
5. The teacher gave the students time to think or get ready for new ideas by using silence. That is, all teacher activity ceased for short time periods. 1 2 3 4 5 6 7

ORAL-VISUAL SWITCHING
6. The teacher used visual material (words on blackboard, objects, pictures, etc.) in such a way that the student must look to get the information. That is, the teacher does not say what the word or object is but refers to it in the lesson making the student look, not listen to what is going on. 1 2 3 4 5 6 7

COMMENTS: _____

Successive teaching episodes and discussion sessions following for each of the following microteaching skills:

- Instructional set: ways of introducing lessons, and linking one part of the lesson to another.
- Illustration and use of examples: deductive and inductive approaches to using examples to develop concepts.
- Asking questions: ways to increase student responses by asking low and high inquiry questions, and developing the skill of pausing when questioning students.
- Reinforcement: developing a variety of positive reinforcement strategies and responses,

including verbal and nonverbal techniques.

- Closure: drawing attention to the completion of a lesson, making connections between previously learned material and currently presented material, and helping students demonstrate what they have learned.

Interns were provided a copy of a booklet entitled "Microteaching: Developing Communication Skills for Effective Classroom Teaching," (Hassard, 1988). The booklet contained descriptions of each skill, and an evaluation sheet for each microteaching skill. Figure 8 shows the description of the skill, "Varying the Stimulus Situation," and the evaluation and feedback form for the skill.

Interns were encouraged to use microteaching during their internship period with their mentors. The approach is effective, especially if the intern and mentor want to improve individual teaching skills.

Peer Teaching

During the seventh week of the institute each intern presented a 45 minute lesson based on the TPAI unit that each had developed. The lessons were presented to the whole group of interns, and each each lesson was videotaped. Peer teaching is different than reflective teaching and microteaching in that in peer teaching, an attempt is made to approximate a typical secondary school class in terms of length of the lesson and the number of students in the class.

During each three and half hour session, three or four peer teaching lessons were taught. Interns from the same session met as a group in the resource room during the following peer teaching session. During this time they observed each others' video tape, and conducted a small group discussion of each lesson. Having one of the instructors in attendance was up to each group; several of the groups opted to include an instructor. In addition to viewing the video tape, the interns wrote a written report evaluating the strengths and weaknesses of their lesson.

The peer teaching sessions were perceived as the culminating activity for the TPAI units that each intern had developed. Prior to the peer teaching sessions, the TPAI units had been rated using the State of Georgia's Teacher Performance Assessment Instruments evaluation scheme. Interns received feedback from their subject matter coordinators on the lesson plans they had developed. The peer teaching sessions gave them an opportunity to try out one of the plans to find out if it worked!

Mentoring

The final theme that is to be discussed is that of mentoring. An integral aspect of the model that was implemented in the alternative program was the stipulation that each

intern would work under the supervision of a mentor teacher during the academic year 1988-1989. During the eighth week of the summer institute, 18 mentors were involved in a week of training under the direction of Edith Guyton, of Georgia State University, and the institute staff.

Mentors met separately for specialized training, and were involved in joint sessions with the interns. This opportunity to develop relationships, and develop a common language was viewed as an important step in facilitating a successful year of teaching and mentoring. The mentor training focused on the following content areas: responsibilities for assessing interns using instruments in the Alternative Certification Document, being a mentor, observation and evaluation skills, conferencing and communication skills, and structuring the mentor-intern experience.

A sample of the objectives for the mentor training include:

- Differentiating between observation and evaluation.
- Developing skills in observation, analysis and evaluation of teaching.
- Applying knowledge of effective teaching in observations, analysis and evaluations of the interns.
- Developing a plan for working with their intern.
- Developing conferencing and communication skills.

Mentors were involved in a variety of activities. Video tapes of actual teaching episodes were used to develop observation and conferencing skills. Role playing was used to help mentors develop conferencing skills, and learn to receive feedback on their own behaviors.

Briefly, here is a synopsis of the mentors' training.

Day 1. Mentors met with institute staff for an orientation session. During this session, the mentors were given information about the interns' summer training, and were involved in a discussion of the role and responsibilities for evaluating the interns using the instruments in the alternative certification document. To prepare the mentors for Day 2, the mentors were introduced to two of the process themes, reflective teaching and microteaching. They observed a video tape on reflective teaching, and received printed materials on both process themes.

Day 2. The morning session was a combined meeting with the interns. Interns demonstrated reflective teaching and microteaching. Six interns volunteered to be designated teachers, and were prepared to teach a reflective teaching lesson. One round of reflective teaching was carried out, as well as reflective teaching small and large group discussion sessions. Three microteaching skills were also demonstrated by the interns. One of the lessons, in the content area of science, was presented in French. This session

provided an opportunity for interns and mentors to work together, and to discuss teaching under laboratory conditions. In the afternoon, interns and mentors were divided into subject matter groups to meet with the coordinators and the state coordinators of foreign language, mathematics and science. These sessions provided another opportunity for interns and mentors to work together, this time on a topic related to their subject matter specialty.

Day 3. This marked the beginning of a three day specialized mentor training program under the direction of Edi Guyton. The morning session focused on mentoring and supervision, and the research related to mentoring and supervision of interns. During the afternoon session the mentors worked on observation and evaluation skills by observing video tapes of teaching episodes, and discussing their observations.

Day 4. The morning session was devoted to the concept of "effective teaching" and the research related to this concept. The afternoon session was an experiential session in which the mentors simulated intern-mentor conferences to develop and improve their conferencing and communication skills.

Day 5. The session focused on planning and working with the intern during the academic year. The activities that were suggested were directly related to the research model that will be discussed below. The interns and mentors met together to go over the research process that they would be involved in during the year.

The arrival of the mentors signaled the onset of a new phase for the interns---the internship phase. The interns and mentors would return to their schools within the next two weeks, and begin the 1988-1989 school year, which was the internship phase for the Alternative Training Program.

Internship Phase

There are two aspects of the internship phase (August 15, 1988 - June 15, 1989) that warrant discussion, and they are: the activities of the interns and mentors, and research activities based on feedback from the interns and mentors. Since the mentors were in residence with the interns during the last week of the institute (except for four interns, whose mentors had not been identified), there was an opportunity to create a transition between being a "student" and beginning to think about planning for instruction, which for some interns was only a week away.

Activities

The intern-mentor relationship is one of the major elements of the Alternative Training Project, and the staff of the Institute planned a number of activities for the interns and mentors while they were together in Athens as a prelude to a year of collaboration,

problem solving and teaching. As with the nature of the summer institute, the nature year long internship was influenced by the Alternative Certification Document. The supervised year-long internship under the guidance of a mentor is structured by a series of quarterly evaluation forms. The evaluation forms are specific for each of the areas of foreign language, mathematics and science. Aside from personal observations (established and maintained appropriate working relationship, e.g.) the competencies are grouped according the pedagogical categories identified in an earlier part of the paper (managing the classroom, organizing the curriculum, delivering instruction, evaluating students). Figure 9 shows the first quarter internship form for foreign language interns. Similar forms are being used with the mathematics and science interns.

Figure 9. Internship Evaluation Form
First Quarter: Foreign Language

INTERNSHIP: CRITICAL FIELDS

FIRST QUARTER - Foreign Language

NAME_____ SCHOOL_____

TEACHING ASSIGNMENT_____

BEGINNING/ENDING DATES_____DAYS PRESENT____DAYS ABSENT____

The intern has:

Yes	No	PERSONAL SUMMARY
( )	( )	1. Established and maintained appropriate working relationships
( )	( )	2. Appropriately responded to criticism and instructions
( )	( )	3. Cooperated with the coordinator and supervisor
( )	( )	4. Demonstrated a positive attitude toward teaching
( )	( )	5. Maintained a good employee evaluation
( )	( )	6. Completed the number of contact hours required beyond the normal work day

OBJECTIVE SUMMARY

Managing the Classroom; Organizing Time, Space and Materials and Communicating with Students

( )	( )	1. Established beginning year (quarter/semester) routines by identifying school policies and procedures, and establishing classroom and record-keeping procedures.
( )	( )	2. Developed a set of rules for student behavior in the classroom, and a set of procedures for student responsibility and accountability
( )	( )	3. Demonstrated techniques to reinforce acceptable student behavior
( )	( )	4. Demonstrated techniques to redirect off-task learners
( )	( )	5. Identified disruptive behavior and taken appropriate and prompt corrective action
( )	( )	6. Demonstrated a positive learning climate by expressing enthusiasm for subject, learning, and learner
( )	( )	7. Stimulated student interest in topic
( )	( )	8. Initiated and maintained classroom communication free from sarcasm and ridicule
( )	( )	9. Used standard English
( )	( )	10. Provided appropriate directions for instruction and classroom management

Organizing the Curriculum

( )	( )	1. Written objectives that state student behavior in measurable terms
( )	( )	2. Written objectives appropriate for students' ages and abilities
( )	( )	3. Developed activities which relate to lesson objectives
( )	( )	4. Specified resources to achieve selected objectives
( )	( )	5. Written assessment items that measure lesson objectives

Delivering Instruction: Foreign Language

( )	( )	1. Prepared a written rationale to justify study of foreign language for all students
( )	( )	2. Arrived at operant philosophy for use of foreign language versus native language in classroom
( )	( )	3. Arrived at an operant philosophy on error correction
( )	( )	4. Identified theory and demonstrated methods for teaching the skill of listening

Evaluating Students' Knowledge and Skills

( )	( )	1. Demonstrated within lesson plans where students are briefed on expectations for evaluation
( )	( )	2. Provided constructive feedback to students to encourage further progress

The intern has successfully completed or demonstrated each item listed above.

_____ _____

Mentor Teacher Curriculum Specialist

_____ _____

Date Date

The mentor process is one in which the mentor, who is the more skilled and experienced person in the situation, provides guidance and council for the intern throughout the year. The mentors serve as role models, and as such will be in a position to help promote the professional development of the interns. Although not always possible in all situations, mentors should be free to conduct two-way conferences to discuss observations of the intern, to explore problems and issues that arise from the normal course of teaching, and to provide an opportunity for the intern to "reflect" on teaching, and view teaching developmentally.

Research on the mentoring process clearly suggests a number of roles for the mentor. Anderson and Shannon (1988) outline five roles for the mentor that were

emphasized in the mentor training program: 1) the process of nurturing, 2) the act of serving as a role model, 3) the five mentoring functions (teaching, sponsoring, encouraging, counseling, and befriending), 4) the focus on professional and/or personal development, and 5) the ongoing caring relationship.

During the internship, the mentors were asked to carry out the following activities.

1. Observation. Observing the intern on a regular basis is an important aspect for the professional development of the intern. The mentors will put into practice the observation skills that they learned during the training. In so doing they will help the intern understand his or her teaching style and behaviors, differentiate observations of teaching from inferences or opinions about teaching. Observations will provide the data for intern-mentor conferences.

2. Conferences. Each observation should be followed by a short conference that focuses on the lesson that was observed. Conferences provide time for the interns and mentors to be "reflective" about teaching, and the forum for a dialogue between the mentor and the intern about the process of teaching. The process is two-way, with both individuals learning from each other.

3. Formative evaluation. Throughout the year, the mentors will be giving interns day-to-day feedback about their teaching. This feedback is essential if the intern is to develop during the year.

4. Summative evaluation. Each quarter, the mentor will provide the staff with formal evaluation data using the instruments developed to parallel the alternative certification document.

In January, 1989 the interns and mentors will join together as a group by participating in a two-day conference in Macon. The conference will provide an opportunity for interns and mentors to share with each other their progress to date, as well as to discuss areas that need further attention and feedback, e.g. classroom management, teaching strategies.

Research

Following a model similar to the one used to investigate TRIPS (Teacher Recruitment and Internship Project for Success) teachers in the Atlanta Public Schools (Guyton, 1988), an extensive research study was undertaken under the direction and supervision of Edith Guyton. The design of the research model is based on the following objectives:

1. To study and compare attitudes toward teaching and teaching performance of the twenty-

three participants in the summer program and an equal number of first year teachers in the same school and/or school system by means of survey data obtained before the school year begins, after one month of teaching and at the end of the school year.

2. To study the influence of pedagogical knowledge and clinical experiences on the first month of teaching.

3. To study the influence of pedagogical knowledge, beginning of the year teaching experiences, the mentoring process and the school environment on teaching attitudes and success.

4. To study the mentoring process and its effectiveness.

There are many questions that the project is interested in for purposes of evaluating the efficacy of the alternative program, and for making policy and program changes in the future. Data will be gathered to answer the following research questions:

1. What are the effects of background on first year teaching experiences?

2. What are the effects of teacher education programs on first year teaching experiences?

3. What are the effects of teacher education programs on first year teaching success?

4. What is the impact of individuals, such as the mentor, supervisor, and principal, on first year teaching experiences and teaching success?

5. What are the effects of teaching attitudes on first year teaching experiences and teaching success?

6. What changes in teaching attitudes occur in the first year of teaching.

7. What are the differences between first year teachers who were prepared through traditional routes and first year teachers prepared through alternative certification routes regarding teaching attitudes, teaching success and first year teaching experiences?

8. Is the mentoring process effective in that it helps develop more capable first year teachers?

9. Are there different mentoring styles and, if so, are some more effective than others?

10. What is the first year of teaching like? Examples of questions that will be addressed are What are the major problems and What helps first year teachers be more effective?

11. What are the effects of context---school, community, type of students---on first year teaching experiences and first year teaching success?

12. What are the characteristics of a successful mentoring program?

The data base that will be established to answer these research questions will be derived from surveys, interviews, journals, activity forms, evaluation forms and observations. The research data was organized as follows:

Data Collected Prior to Teaching

1. Demographic background survey (interns and regular certification teachers--RC)
2. Influences, attitudes and concerns survey (interns and RC teachers)
3. Demographic background data and prior experiences (mentors)

Data Collected During the Internship Period

1. Teaching attitudes survey, after first month, and fourth month, and end of year (interns and RC teachers)
2. Mentor attitude survey, after first month, and fourth month, and end of year.
3. Journals: Kept throughout the year, the journal is designed to summarize thoughts and feelings, successes, problems and concerns on a day to day and week to week basis. (interns and mentors)
4. Activity forms: These are kept throughout the year on a weekly basis. The activity report is a description of activities connected with helping first year teachers become better teachers. The report includes information on the starting and ending times of the activity, the nature of the activity, people who were involved in the activity, and a brief description of the focus of the activity. (interns and mentors)
5. Evaluation forms: A number of different forms will be used. They include a) TPAI results, b) alternative certification quarterly evaluation forms completed by the mentor, c) quarterly project evaluation sheet. (Interns and RC teachers)
6. Mentor evaluation of mentoring program and of relationship with intern: end of the year.
7. Description of schools, students and community---fact sheet. (interns and RC teachers.)

The evaluation of the alternative teacher education model described in this paper will be helpful in shaping the future of alternative teacher training programs in Georgia. Does a program which provides eight weeks of pedagogical training adequately prepare future teachers for the classroom? Can a person with an academic degree be prepared to teach in this way? The issues that are raised by alternative teacher training programs come at a time when questions are being raised about the education of teachers, in alternative as well as "traditional" programs. Our results, thus far, are tainted by the euphoria of an intensive summer program, and from early "reports" of successes in the field. What one wants to know, and this will take several years of following the interns and mentors, is what impact such a program had on these individual as profession educators.

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Appendix

Overview of the Georgia Model: Alternative Certification Program in Foreign Language, Mathematics and Science

Phases
I. Planning (Feb 88 - June 88). Develop the curriculum for the summer institute, and facilitate logistical aspects of the project.
II. Summer Institute (June 20 - August 12)
III. Internship (August 88 - June 89)
IV. Evaluation, Research and Follow-up

Characteristics
- Staff development credit
- A team of instructors from GSU, UGA, the public schools, and Georgia department of education.
- Integration of pedagogical skills and knowledge into a unified, intensive program.
- Pedagogical skills and knowledge derived from GDE Alternative Certification document, AFT-ER&D Program, and current literature on teacher education.
- Emphasis on reflective teaching, including creativity and problem solving.
- Modeling of behaviors by institute faculty and guest speakers.
- Training in pedagogical skills and knowledge followed by a full year internship under the guidance of a mentor teacher.
- Research model places emphasis on feedback from interns and mentors via personal logs, questionnaires, and a follow-up conferences.

Participants
23 Secondary Teachers of Foreign Language, Mathematics and Science Instruction
18 Mentor Teachers representing 15 school systems

Pedagogical Themes
- Classroom management (CM)
- Organizing the curriculum (OC)
- Evaluating students' knowledge and skills (ES)
- Delivering Instruction: foreign language, mathematics, science (DI)
- Microcomputer technologies (MC)
- Human growth and development (HG)
- Identification of exceptional youth (EY)

Process Themes
- Reflective teaching(RT)
- Microteaching skills and communication (MT)
- Peer teaching
- Foxfire Small Group Cooperative teams

Mentoring
- Collaboration of trained experienced teacher (the mentor) with the intern for an academic year.
- Process approach involving observations of intern teaching and conferences.

Funding
Georgia Department of Education

Research
- Compare teachers in the alternative certification institute with beginning teachers not in the institute.
- Study the influence of the summer institute on intern's early phase of teaching.
- Study the influence of the institute, beginning of year teaching experiences, mentoring process and school environment on intern attitudes and success.
- Study the mentoring process and its effectiveness.

Institute Staff
Rosalie Jensen, Director and Coordinator of Mathematics Instruction
Jack Hassard, Coordinator of Clinical Experiences and Science Instruction
Edi Guyton, Coordinator of Mentor Training and Research
Cynthia Kuhlman, Coordinator of Exceptional Children and Youth
Kim Mallette, Coordinator of Foreign Language Instruction